

## **What is claimed is:**

**[Claim 1]** A reaction-injection-molded galley cart for an aircraft, comprising:

a body configured to move along a passenger aisle of the aircraft, said body having a one-piece plastic shell that forms a first side portion, a second side portion, a top side portion, and a bottom side portion of said body;

wherein said first side portion is spaced apart from said second side portion;

wherein said top side portion extends between said first side portion and said second side portion;

wherein said bottom side portion extends between said first side portion and said second side portion;

wherein said one-piece plastic shell includes at least one layer of a reaction-injection-molded material.

**[Claim 2]** The reaction-injection-molded galley cart recited in claim 1 wherein said at least one layer of reaction-injection-molded material has a plurality of fasteners embedded therein.

**[Claim 3]** The reaction-injection-molded galley cart recited in claim 1 wherein said plurality of fasteners is selected from the group consisting of a plurality of castors, a plurality of hinges, and a plurality of detent flanges.

**[Claim 4]** The reaction-injection-molded galley cart recited in claim 1 wherein said plurality of fasteners mounts at least one decorative panel to said body.

**[Claim 5]** The reaction-injection-molded galley cart recited in claim 1 wherein said at least one layer of reaction-injection-molded material includes a base layer and a foam layer coupled to said base layer.

**[Claim 6]** The reaction-injection-molded galley cart recited in claim 1 wherein said top side portion of said one-piece plastic shell has a tray member coupled thereto.

**[Claim 7]** The reaction-injection-molded galley cart recited in claim 1 wherein said one-piece plastic shell defines an interior cavity and a pair of opposing open ends in communication with said interior cavity, said pair of opposing open ends having a pair of panels coupled thereto.

**[Claim 8]** The reaction-injection-molded galley cart recited in claim 7 wherein at least one said pair of panels is a door for selectively providing access to said interior cavity.

**[Claim 9]** The reaction-injection-molded galley cart recited in claim 1 wherein said one-piece shell construction has a plurality of grooves formed therein for receiving and supporting at least one tray within said interior cavity.

**[Claim 10]** The reaction-injection-molded galley cart recited in claim 9 wherein said plurality of grooves are formed in said first side portion and said second side portion.

**[Claim 11]** A reaction-injection-molded galley cart for an aircraft, comprising:  
a body configured to move along a passenger aisle of the aircraft, said body having a one-piece plastic shell that forms a first side portion, a second side portion, a top side portion, and a bottom side portion of said body;  
wherein said first side portion is spaced apart from said second side portion;  
wherein said top side portion extends between said first side portion and said second side portion;  
wherein said bottom side portion extends between said first side portion and said second side portion;  
wherein said one-piece plastic shell includes at least one layer of a reaction-injection-molded material with a plurality of reinforcement members embedded therein.

**[Claim 12]** The reaction-injection-molded galley cart recited in claim 11 wherein said plurality of reinforcement members includes at least one of a plurality of carbon fibers and a plurality of glass fibers.

**[Claim 13]** The reaction-injection-molded galley cart recited in claim 11 wherein said at least one layer of reaction-injection-molded material has a plurality of fasteners embedded therein.

**[Claim 14]** The reaction-injection-molded galley cart recited in claim 11 wherein said plurality of fasteners is selected from the group consisting of a plurality of castors, a plurality of hinges, and a plurality of detent flanges.

**[Claim 15]** The reaction-injection-molded galley cart recited in claim 11 wherein said plurality of fasteners mounts at least one decorative panel to said body.

**[Claim 16]** The reaction-injection-molded galley cart recited in claim 11 wherein said at least one layer of reaction-injection-molded material includes a base layer and a foam layer coupled to said base layer.

**[Claim 17]** The reaction-injection-molded galley cart recited in claim 11 wherein said top side portion of said one-piece plastic shell has a tray member coupled thereto.

**[Claim 18]** The reaction-injection-molded galley cart recited in claim 11 wherein said one-piece plastic shell defines an interior cavity and a pair of opposing open ends in communication with said interior cavity, said pair of opposing open ends having a pair of panels coupled thereto.

**[Claim 19]** The reaction-injection-molded galley cart recited in claim 18 wherein at least one said pair of panels is a door for selectively providing access to said interior cavity.

**[Claim 20]** The reaction-injection-molded galley cart recited in claim 11 wherein said one-piece shell construction has a plurality of grooves formed therein for receiving and supporting a tray within said interior cavity.

**[Claim 21]** The reaction-injection-molded galley cart recited in claim 20 wherein said plurality of grooves are formed in said first side portion and said second side portion.

**[Claim 22]** The reaction-injection-molded galley cart recited in claim 11 wherein said base layer is generally impermeable to fluids.

**[Claim 23]** A system for manufacturing a reaction-injection-molded galley cart for an aircraft, comprising:

- a first mold;
- a resin applicator device for applying at least one layer of reaction-injection-molded material to said first mold;
- a second mold for clamping to said first mold and forming a one-piece plastic shell;
- at least one motor coupled to at least one of said first mold, said resin applicator device, and said second mold;
- a controller coupled to said at least one motor for controlling movement of at least one of said first mold, said resin applicator device, and said second mold;
- wherein said one-piece plastic shell has a first side portion, a second side portion spaced apart from said first side portion, a top side portion extending between said first side portion and said second side portion, and a bottom side portion extending between said first side portion and said second side portion.

**[Claim 24]** A reaction-injection-molded galley cart for an aircraft manufactured by the process comprising:

- rotating a first mold;
- applying a base layer to said first mold;
- applying a foam layer to said base layer;
- embedding at least one reinforcement member in at least one of said base layer and said foam layer;

halting a spin of said first mold;  
clamping a second mold to said first mold;  
applying pressure to said base layer and said foam layer; and  
heating said base layer and said foam layer; and  
wherein said base layer and said foam layer form a one-piece plastic shell  
with a first side portion, a second side portion spaced apart from said first side portion,  
a top side portion extending between said first side portion and said second side  
portion, and a bottom side portion extending between said first side portion and said  
second side portion;  
wherein at least said foam layer comprises reaction-injection-molded  
material.

**[Claim 25]** A method for manufacturing a reaction-injection-molded galley cart  
for an aircraft, comprising:

rotating a first mold;  
applying a base layer to said first mold;  
applying a foam layer to said base layer;  
halting a spin of said first mold;  
clamping a second mold to said first mold;  
applying pressure to said base layer and said foam layer; and  
heating said base layer and said foam layer;  
wherein said base layer and said foam layer form a one-piece plastic shell  
with a first side portion, a second side portion spaced apart from said first side portion,  
a top side portion extending between said first side portion and said second side  
portion, and a bottom side portion extending between said first side portion and said  
second side portion;  
wherein said foam layer comprises reaction-injection-molded material.

**[Claim 26]** The method recited in claim 25 further comprising:  
applying an outer layer to said foam layer.

**[Claim 27]** The method recited in claim 25 further comprising:  
securing at least one fastener to at least one of said first mold and said  
second mold; and  
embedding said at least one fastener in at least one of said base layer and  
said foam layer.

**[Claim 28]** The method recited in claim 25 further comprising:  
coupling a tray member to said top side portion of said one-piece plastic shell.

**[Claim 29]** The method recited in claim 25 further comprising:  
coupling a pair of panels to a pair of opposing ends of said one-piece plastic shell.

**[Claim 30]** The method recited in claim 29 wherein at least one of said pair of panels is a door for selectively providing access to an interior cavity that is defined by said one-piece plastic shell.

**[Claim 31]** The method recited in claim 25 further comprising:  
coupling a plurality of wheels to said bottom side portion of said one-piece plastic shell.

**[Claim 32]** A method for manufacturing a reaction-injection-molded galley cart for an aircraft, comprising:  
rotating a first mold;  
applying a base layer to said first mold;  
applying a foam layer to said base layer;  
embedding a plurality of reinforcement members within at least one of said base layer and said foam layer;  
halting a spin of said first mold;  
clamping a second mold to said first mold;  
applying pressure to said base layer and said foam layer; and  
heating said base layer and said foam layer; and  
actuating a computer-controlled mechanism for moving at least one of said first mold, said second mold, and a resin applicator device;  
wherein said base layer and said foam layer form a one-piece plastic shell with a first side portion, a second side portion spaced apart from said first side portion, a top side portion extending between said first side portion and said second side portion, and a bottom side portion extending between said first side portion and said second side portion;

wherein said foam layer comprises reaction-injection-molded material.

**[Claim 33]** The method recited in claim 32 further comprising:  
applying an outer layer to said foam layer.

**[Claim 34]** The method recited in claim 32 further comprising:  
securing at least one fastener to said first mold; and  
embedding said at least one fastener in at least one of said base layer and  
said foam layer.

**[Claim 35]** The method recited in claim 32 further comprising:  
coupling a tray member to said top side portion of said one-piece plastic  
shell.

**[Claim 36]** The method recited in claim 32 further comprising:  
coupling a pair of panels to a pair of opposing ends of said one-piece  
plastic shell.

**[Claim 37]** The method recited in claim 36 wherein at least one of said pair of  
panels is a door for selectively providing access to an interior cavity that is defined by  
said one-piece plastic shell.

**[Claim 38]** The method recited in claim 32 further comprising:  
coupling a plurality of wheels to said bottom side portion of said one-piece  
plastic shell.